

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No: 10/522,044
Applicants: Peter Drott et al.
Filed: January 19, 2005
Title: SEALING COLLAR
T.C./A.U.: 3673
Examiner: Lee, Gilbert Y.
Confirmation No.: 3988
Notice of Appeal Filed: September 17, 2007
Docket No.: PC10483US

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

SIR:

Appellants hereby request consideration and reversal of the Non-Final Office Action dated August 22, 2007 ("Last Office Action"), and of the rejections of claims 15-20 and 22-26.

Claims 15-20 and 22-26 have been twice rejected, and this appeal is being timely filed in accordance with 37 C.F.R. § 41.31.

I. REAL PARTY IN INTEREST

The Real Party In Interest in this matter is Continental Teves AG & Co. OHG, as evidenced by virtue of an assignment recorded on January 19, 2005, at Reel/Frame 017329/0699.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences related to the subject matter of this Appeal.

III. STATUS OF CLAIMS

Claims 1-14 and 21 have been cancelled. Claims 15-20 and 22-26 stand rejected in the Last Office Action, and are being appealed. Claims 15, 16 and 24 are independent claims.

IV. STATUS OF AMENDMENTS

The claims were not amended subsequent to the Last Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following summary of independent claims 15, 16 and 24 is provided with references to Appellants' substitute specification filed January 19, 2005 and the replacement drawing sheet filed April 17, 2007 ("the Figure") for purposes of illustrating exemplary embodiments of the claimed subject matter.

Claim 15 is directed to a cylinder-and-piston unit comprising a cylinder (1), a piston (15) and a sealing collar (3). (Subst. Spec. at 5, lines 18-21; Figure). The cylinder (1) comprises a bore, and one of the piston (15) and the cylinder (1) has a wall surface along the bore. (Figure). The wall surface includes a first sidewall (near 9) extending parallel to a longitudinal axis of the bore, a second sidewall (7) contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall (coinciding with 2) contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall (coinciding with 11) contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore. (Figure). The second, third and fourth sidewalls are parts of one unitary body (cylinder (1)), forming a groove (2) that is recessed in the wall surface. (Subst. Spec. at 5, lines 20-21; Figure). The sealing collar (3) is positioned in the groove (2) and includes an outside sealing lip (4) and an inside sealing lip (5). (Subst. Spec. at 5, lines 21-23; Figure). The outside and inside sealing lips (4, 5) each have a free end. (Figure). The sealing collar (3) further includes a circumferential extension (6) that extends in parallel to the sealing lips (4, 5) (Subst. Spec. at 3, lines 12-14; Figure). Circumferential extension (6) is arranged radially between the outside sealing lip (4) and the inside sealing lip (5) and projects axially beyond the free ends of the outside and inside

sealing lips. (Subst. Spec. at 5, lines 27-29; Figure). The circumferential extension (6) is configured to contact the second sidewall (7) in the groove (2) and maintain the free ends of the outside and inside sealing lips (4, 5) out of contact with the second sidewall (7) (Subst. Spec. at 5, lines 30-32; Figure).

Claim 16 is directed to a cylinder-and-piston unit comprising a cylinder (1), a piston (15) and a sealing collar (3). (Subst. Spec. at 5, lines 18-21; Figure). The cylinder (1) comprises a bore, and one of the piston (15) and the cylinder (1) has a wall surface along the bore. (Figure). The wall surface includes a first sidewall (near 9) extending parallel to a longitudinal axis of the bore, a second sidewall (7) contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall (coinciding with 2) contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall (coinciding with 11) contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore. (Figure). The second, third and fourth sidewalls are parts of one unitary body (cylinder (1)) and form a groove (2) that is recessed in the wall surface. (Subst. Spec. at 5, lines 20-21; Figure). The sealing collar (3) is positioned in the groove (2) and includes a first sealing lip (5) and a second sealing lip (4). (Subst. Spec. at 5, lines 21-23; Figure). The first sealing lip (5) is acted upon dynamically and makes contact with either the piston (15) (as is the case in the Figure) or the cylinder (1). (Subst. Spec. at 1, lines 9-11). The second sealing lip (4) is acted upon statically while resting on a bottom of the groove (2). (Subst. Spec. at 1, lines 11-13; Figure). The first and second sealing lips (5, 4) each have a free end. (Figure). The sealing collar (3) further includes a circumferential extension (6) that extends between the first and second sealing lips (5, 4), and projects from the first and second sealing lips in an axial direction beyond the free ends of the first and second sealing lips (5, 4). (Subst. Spec. at 5, lines 27-30; Figure). The sealing collar (3) has a rear surface (13) opposite the free ends of the first and second sealing lips. (Figure). Sealing collar (3) has a maximum radial width at the free end of the second sealing lip (4) and a minimum radial width at the rear surface (13). (Figure).

Claim 24 is directed to a cylinder-and-piston unit comprising a cylinder (1), a piston (15) and a sealing collar (3). (Subst. Spec. at 5, lines 18-21; Figure). The

cylinder (1) comprises a bore, and one of the piston (15) and the cylinder (1) has a wall surface along the bore. (Figure). The wall surface includes a first sidewall (near 9) extending parallel to a longitudinal axis of the bore, a second sidewall (7) contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall (coinciding with 2) contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall (coinciding with 11) contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore. (Figure). The second, third and fourth sidewalls are parts of one unitary body (cylinder (1)), and border the sealing collar (3) (Figure). Sealing collar (3) is received in a groove (2) that is recessed in the wall surface. (Figure). The sealing collar (3) is positioned in the groove (2) and includes an outside sealing lip (4) and an inside sealing lip (5). (Subst. Spec. at 5, lines 21-23; Figure). The outside and inside sealing lips (4, 5) each have a free end. (Figure) The sealing collar (3) further includes a circumferential extension (6) that extends generally parallel to the sealing lips. (Subst. Spec. at 3, lines 12-14; Figure). Circumferential extension (6) is arranged radially between the outside sealing lip (4) and the inside sealing lip (5) and has a free end that projects axially beyond the free ends of the outside and inside sealing lips. (Subst. Spec. at 3, lines 14-16). The circumferential extension (6) engages the second sidewall (7) of the groove (2) and maintains the free ends of the outside and inside sealing lips (4, 5) out of contact with the second sidewall (7). (Subst. Spec. at 5, lines 30-32; Figure).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 15-20 and 22-26 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,602,791 ("Zollner").

VII. ARGUMENT

It is respectfully submitted that claims 15-20 and 22-26 are patentable over Zollner for the reasons set forth below.

**A. CLAIM 15 IS NOT ANTICIPATED BY ZOLLNER UNDER 35 U.S.C. § 102
BECAUSE ZOLLNER FAILS TO TEACH EACH AND EVERY ELEMENT OF
CLAIM 15.**

Independent claim 15 recites a cylinder-and-piston unit comprising a cylinder, the cylinder comprising a bore, and one of the piston and the cylinder having a wall surface along the bore, the wall surface comprising a first sidewall extending parallel to a longitudinal axis of the bore, a second sidewall contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore, the second, third and fourth sidewalls being parts of one unitary body, forming a groove that is recessed in the wall surface, the sealing collar being positioned in the groove.

Zollner does not teach a cylinder-and-piston unit having a wall surface with sidewalls that form a recessed groove. To the contrary, the wall surfaces in plunger sleeves (5, 105) have no recessed grooves. The Last Office Action contends that the Zollner cylinder has a "wall surface" made up of surfaces "V" and "W" on a holding ring (21), "X" on cylinder (5), and "Y" and "Z" on holding element (16). (Last Office Action, at 3). Four of the five surfaces, i.e. V, W, Y and Z are clearly not on cylinder (5). They are on other components. Therefore, the cylinder does not have such a wall surface. Surfaces W, X and Y are also not "contiguous" as claimed. W and X are divided by a clearance space that separates holding ring (21) from cylinder (5), and Y and Z are divided by a clearance space that separates cylinder (5) from holding element (16). Furthermore, surfaces W, X and Y are not "parts of one unitary body" as claimed, but are parts of three independently moving components (i.e. W is on holding ring (21), X is on cylinder (5) and Y is on holding element (16)).

The Last Office Action further contends that an annular space between holding ring (21) and holding element (16) in Zollner is a "groove" recessed in the wall surface. As noted above, the cylinder's wall surface does not include V, W, Y and Z, as these surfaces are located on other components, not the cylinder. Therefore, it

can not be said that the annular space is a "groove" or that it is "recessed" in the wall surface of the cylinder. If anything, the space is entirely outside the wall surface, not recessed in it.

For the foregoing reasons, claim 15 is not anticipated by Zollner under 35 U.S.C. § 102. Reversal of the rejection of claim 15 is respectfully requested. .

B. CLAIMS 16-23 ARE NOT ANTICIPATED BY ZOLLNER UNDER 35 U.S.C. § 102 BECAUSE ZOLLNER FAILS TO TEACH EACH AND EVERY ELEMENT OF CLAIM 16.

Independent claim 16 recites a cylinder-and-piston unit comprising a cylinder, the cylinder comprising a bore, and one of the piston and the cylinder having a wall surface along the bore, the wall surface comprising a first sidewall extending parallel to a longitudinal axis of the bore, a second sidewall contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore, the second, third and fourth sidewalls being parts of one unitary body, forming a groove that is recessed in the wall surface, the sealing collar being positioned in the groove.

Zollner does not teach a cylinder-and-piston unit having a wall surface with sidewalls that form a recessed groove. To the contrary, the wall surfaces in plunger sleeves (5, 105) have no recessed grooves. The Last Office Action contends that the Zollner cylinder has a "wall surface" made up of surfaces "V" and "W" on a holding ring (21), "X" on cylinder (5), and "Y" and "Z" on holding element (16). (Last Office Action, at 3). Four of the five surfaces, i.e. V, W, Y and Z are clearly not on cylinder (5). They are on other components. Therefore, the cylinder does not have such a wall surface. Surfaces W, X and Y are also not "contiguous" as claimed. W and X are divided by a clearance space that separates holding ring (21) from cylinder (5), and Y and Z are divided by a clearance space that separates cylinder (5) from holding element (16). Furthermore, surfaces W, X and Y are not "parts of one unitary body" as claimed, but are parts of three independently moving components (i.e. W is on holding ring (21), X is on cylinder (5) and Y is on holding element (16)).

The Last Office Action further contends that an annular space between holding ring (21) and holding element (16) in Zollner is a "groove" recessed in the wall surface. As noted above, the cylinder's wall surface does not include V, W, Y and Z, as these surfaces are located on other components, not the cylinder. Therefore, it can not be said that the annular space is a "groove" or that it is "recessed" in the wall surface of the cylinder. If anything, the space is entirely outside the wall surface, not recessed in it.

For the foregoing reasons, claim 16 is not anticipated by Zollner under 35 U.S.C. § 102. Reversal of the rejection of claim 16 is respectfully requested.

Claims 17-23 are dependent on claim 16 and incorporate all the claim elements recited in claim 16. Therefore, claims 17-23 are not anticipated by Zollner under 35 U.S.C. § 102 for at least the same reasons that claim 16 is not anticipated by Zollner, as discussed above. Reversal of the rejection of claims 17-23 is respectfully requested.

C. CLAIMS 24 AND 25 ARE NOT ANTICIPATED BY ZOLLNER UNDER 35 U.S.C. § 102 BECAUSE ZOLLNER FAILS TO TEACH EACH AND EVERY ELEMENT OF CLAIM 24.

Independent claim 24 recites a cylinder-and-piston unit comprising a cylinder, the cylinder comprising a bore, and one of the piston and the cylinder having a wall surface along the bore, the wall surface comprising a first sidewall extending parallel to a longitudinal axis of the bore, a second sidewall contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore, the second, third and fourth sidewalls being parts of one unitary body and bordering a groove that is recessed in the wall surface, the sealing collar being positioned in the groove.

Zollner does not teach a cylinder-and-piston unit having a wall surface with sidewalls that form a recessed groove. To the contrary, the wall surfaces in plunger sleeves (5, 105) have no recessed grooves. The Last Office Action contends that the

Zollner cylinder has a "wall surface" made up of surfaces "V" and "W" on a holding ring (21), "X" on cylinder (5), and "Y" and "Z" on holding element (16). (Last Office Action, at 3). Four of the five surfaces, i.e. V, W, Y and Z are clearly not on cylinder (5). They are on other components. Therefore, the cylinder does not have such a wall surface. Surfaces W, X and Y are also not "contiguous" as claimed. W and X are divided by a clearance space that separates holding ring (21) from cylinder (5), and Y and Z are divided by a clearance space that separates cylinder (5) from holding element (16). Furthermore, surfaces W, X and Y are not "parts of one unitary body" as claimed, but are parts of three independently moving components (i.e. W is on holding ring (21), X is on cylinder (5) and Y is on holding element (16)).

The Last Office Action further contends that an annular space between holding ring (21) and holding element (16) in Zollner is a "groove" recessed in the wall surface. As noted above, the cylinder's wall surface does not include V, W, Y and Z, as these surfaces are located on other components, not the cylinder. Therefore, it can not be said that the annular space is a "groove" or that it is "recessed" in the wall surface of the cylinder. If anything, the space is entirely outside the wall surface, not recessed in it.

For the foregoing reasons, claim 24 is not anticipated by Zollner under 35 U.S.C. § 102. Reversal of the rejection of claim 24 is respectfully requested.

Claim 25 is dependent on claim 24 and incorporates all the claim elements recited in claim 24. Therefore, claim 25 is not anticipated by Zollner under 35 U.S.C. § 102 for at least the same reasons that claim 24 is not anticipated by Zollner, as discussed above. Reversal of the rejection of claim 25 is respectfully requested.

D. CLAIM 26 IS NOT ANTICIPATED BY ZOLLNER UNDER 35 U.S.C. § 102 BECAUSE ZOLLNER FAILS TO TEACH EACH AND EVERY ELEMENT OF CLAIM 26.

Claim 26 is dependent on claim 24 and incorporates all the claim elements recited in claim 24. Therefore, claim 26 is not anticipated by Zollner under 35 U.S.C. § 102 for at least the same reasons that claim 24 is not anticipated by Zollner, as discussed above.

Claim 26 further recites a rear surface opposite the free ends of the outside and inside sealing lips, wherein the sealing collar has a maximum outside diameter at the free end of the outside sealing lip and a minimum outside diameter at the rear surface. Zollner does not disclose a sealing collar having a maximum outside diameter at the free end of the outside lip and a minimum outside diameter at the rear surface. Referring to seal (22) in Figure 2, which is referred to in the Last Office Action, the outside diameter at the outside lip is equal to the outside diameter at the rear surface. The same is true for seal (19) in Figure 2. Therefore, Zollner does not disclose the feature of claim 26.

The Last Office Action asserts that the "minimum outside diameter" at the rear surface is the same width as the supporting ring (1), which is less than the outer diameter at the outside sealing lip. Appellants respectfully disagree. Seal (22) is a ring shaped body. As such, the width of supporting ring 1 corresponds to the *inner* diameter of seal (22) at the rear end, not the outer diameter. There is only one "outer diameter" at the rear end, and that outer diameter is shown as being equal to the outer diameter at the outside sealing lip.

For the foregoing reasons, reversal of the rejection of claim 26 is respectfully requested.

E. CONCLUSION

Appellants respectfully submit that the rejections of claims 15-20 and 22-26 under 35 U.S.C. § 102(b) are not supported by the evidence made of record. Accordingly, Appellants respectfully request the Board's reversal of all of the claim rejections.

Respectfully submitted,



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RPS/CAR/ks

Dated: November 15, 2007

VIII. CLAIMS APPENDIX

15. A cylinder-and-piston unit comprising a cylinder, a piston and a sealing collar, the cylinder comprising a bore, and one of the piston and the cylinder having a wall surface along the bore, the wall surface comprising a first sidewall extending parallel to a longitudinal axis of the bore, a second sidewall contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore, the second, third and fourth sidewalls being parts of one unitary body, forming a groove that is recessed in the wall surface, the sealing collar being positioned in the groove and comprising an outside sealing lip and an inside sealing lip, the outside and inside sealing lips each having a free end, the sealing collar further including a circumferential extension that extends in parallel to the sealing lips, is arranged radially between the outside sealing lip and the inside sealing lip and projects axially beyond the free ends of the outside and inside sealing lips, the circumferential extension being configured to contact the second sidewall in the groove and maintain the free ends of the outside and inside sealing lips out of contact with the second sidewall.

16. A cylinder-and-piston unit comprising a cylinder, a piston and a sealing collar, the cylinder comprising a bore, and one of the piston and the cylinder having a wall surface along the bore, the wall surface comprising a first sidewall extending parallel to a longitudinal axis of the bore, a second sidewall contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall contiguous with the second sidewall and extending generally parallel to the first sidewall, a fourth sidewall contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore, the second, third and fourth sidewalls being parts of one unitary body and forming a groove that is recessed in the wall surface, the sealing collar being positioned in the groove and comprising a first sealing lip and a second sealing lip, the first sealing lip being acted upon dynamically and making contact with the piston or the cylinder,

respectively, and the second sealing lip thereof being acted upon statically while resting on a bottom of the groove, the first and second sealing lips each having a free end, the sealing collar further comprising a circumferential extension that extends between the first and second sealing lips, and projects from the first and second sealing lips in an axial direction beyond the free ends of the first and second sealing lips, the sealing collar having a rear surface opposite the free ends of the first and second sealing lips, wherein the sealing collar has a maximum radial width at the free end of the second sealing lip and a minimum radial width at the rear surface.

17. The cylinder-and-piston unit as claimed in claim 16, wherein the axial width of the groove is larger than the axial width of the sealing collar.

18. The cylinder-and-piston unit as claimed in claim 16, wherein the second sealing lip is configured such that it can be passed over by pressure fluid flow and hence provides the effect of a valve.

19. The cylinder-and-piston unit as claimed in claim 16, wherein the strength of the extension as a difference between its inside and outside diameters has at least the same rate as the strength of each of the sealing lips.

20. The cylinder-and-piston unit as claimed in claim 16, wherein the end area at the free end of the extension is provided with radial apertures allowing pressure fluid to pass through in a radial direction.

22. The cylinder-and-piston unit as claimed in claim 20, wherein the apertures are open in an axial direction towards the free end of the extension.

23. The cylinder-and-piston unit as claimed in claim 16, wherein the extension is integrally connected to the sealing collar and is made of the same material.

24. A cylinder-and-piston unit comprising a cylinder, a piston and a sealing collar, the cylinder comprising a bore, and one of the piston and the cylinder having a wall surface along the bore, the wall surface comprising a first sidewall extending parallel to a longitudinal axis of the bore, a second sidewall contiguous with the first sidewall and extending generally perpendicularly to the first sidewall, a third sidewall contiguous with the second sidewall and extending generally parallel to the first

sidewall, a fourth sidewall contiguous with the third sidewall and extending generally parallel to the second sidewall, and a fifth sidewall contiguous with the fourth sidewall and extending generally parallel to the first sidewall along the bore, the second, third and fourth sidewalls being parts of one unitary body and bordering a groove that is recessed in the wall surface, the sealing collar being positioned in the groove and comprising an outside sealing lip and an inside sealing lip, the outside and inside sealing lips each having a free end, the sealing collar further including a circumferential extension that extends generally parallel to the sealing lips, is arranged radially between the outside sealing lip and the inside sealing lip and has a free end that projects axially beyond the free ends of the outside and inside sealing lips, the circumferential extension engaging the second sidewall of the groove and maintaining the free ends of the outside and inside sealing lips out of contact with the second sidewall.

25. The cylinder-and-piston unit of claim 24, wherein the free end of the circumferential extension is provided with radial apertures allowing pressure fluid to pass through in a radial direction.

26. The cylinder-and-piston unit of claim 25, wherein the sealing collar includes a rear surface opposite the free ends of the outside and inside sealing lips, wherein the sealing collar has a maximum outside diameter at the free end of the outside sealing lip and a minimum outside diameter at the rear surface.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.